

PATENT CLAIMS

1. A device for determining the driving capability of a
5 driver in a vehicle, with an illumination device (1) for
illuminating at least one of the driver's (12) eyes, a picture
taking device (2) for taking pictures of the illuminated eye,
an evaluation device (3) which serves to evaluate the pictures
taken by the picture taking device (2), and a data storage
10 (4),

characterised in that
the illumination device (1) illuminates with flash type light
or intermittently at least one of the driver's (12) eyes, the
evaluation device (3) comparing the measured values taken for
15 the driver's pupil reaction by means of the picture taking
device (2) with at least one normal value for a pupil reaction
stored in the data storage (4), and when the normal value is
not reached by the measured values for the pupil reaction,
having an effect upon a control device (5) such that the
20 vehicle is prevented from starting up or the vehicle in
operational state is prevented from being driven on after it
has stopped.

2. The device according to Claim 1,
25 characterised in that
an engine start up can be prevented by means of the control
device (5).

3. The device according to Claims 1 or 2,
30 characterised in that
by means of the control device (5) engagement of at least the
forward gears of the manual or automatic transmission (7) of
the vehicle can be blocked.

4. The device according to any of Claims 1 to 3,
characterised in that
when the measured values for the pupil reaction fail to reach
the normal value for a pupil reaction stored, the evaluation
5 device (3) actuates a signal transmitter (8) which emits an
acoustic and/or optical warning signal.

5. The device according to any of Claims 1 to 4,
characterised in that
10 the illumination device (1) has at least one flash light
source.

6. The device according to any of Claims 1 to 5,
characterised in that
15 the illumination device has at least one infra-red light
source (10) which emits heat rays outside of the visible
colour spectrum, the picture taking device (2) being formed by
a camera device (16) sensitive to infra-red.

20 7. The device according to any of Claims 1 to 6,
characterised in that
biometric data for at least one person relating to their iris
structure, eye colour, distance between the eyes, eye area,
nose size, mouth size and/or face shape can be stored in the
25 data storage (4), and corresponding biometric data of the
driver in question can be determined by the picture taking
device (2), the evaluation device (3) for identifying the
driver comparing the biometric data established with the
stored biometric data, and if the data compared do not
30 correspond within pre-specified tolerance limits having an
effect upon at least one control device (5) such that the
vehicle is prevented from starting up, or a vehicle in
operational state is prevented from being driven on after it
has stopped.

8. The device according to any of Claims 1 to 7,
characterised in that
biometric data of at least one finger print can be stored in
5 the data storage (4) and biometric data of a finger print of
the driver in question can be determined by means of a sensor
(9), the evaluation device (3) for identifying the driver
comparing the biometric data established with the stored
biometric data, and when the compared data do not correspond
10 within pre-specified tolerance limits having an effect upon at
least one control device (5) such that the vehicle is
prevented from starting up or a vehicle in operational state
is prevented from being driven on after it has stopped.

15 9. The device according to any of Claims 1 to 8,
characterised in that
the picture taking device (2), the evaluation device (3)
and/or the data storage (4) are provided with at least one
interface for signal and/or data transfer.

20 10. The device according to any of Claims 1 to 9,
characterised in that
the illumination device (1) and/or the picture taking device
(2) are integrated in a vehicle sun visor (14) provided for
25 the driver (12).

11. The device according to any of Claims 1 to 10,
characterised in that
the evaluation device (3) actuates an illumination device (11)
30 aligned or alignable to the visual field of the driver and
which emits a diffuse, wide area of light which counters the
driver's tiredness dependent upon a change to the visible size
of the cornea surface, the lid closure frequency and/or the

lid closure duration of the eye and/or the occurrence of pupil diameter oscillations.

12. The device according to any of Claims 1 to 11,
5 characterised in that
if there is a functional failure of the picture taking device (2) and/or a functional failure of the illumination device (1) and/or a functional failure of the signal transmitter (8) emitting an acoustic and/or optical warning signal, the
10 evaluation device (3) has an effect upon at least one control device (5) such that the vehicle is prevented from starting up or a vehicle in operational state is prevented from being driven on after it has stopped.

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